AMENDMENTS TO THE CLAIMS

Please add or amend the claims to read as follows, and cancel without prejudice or disclaimer to resubmission in a divisional or continuation application claims indicated as cancelled:

1. (Currently amended) An assembly comprising:

an x-ray tube; ~~including:~~

~~an envelope which defines an evacuated chamber in which x-rays are generated;~~

a housing which surrounds at least a portion of the x-ray tube ~~envelope~~;

a cooling system which circulates a coolant through the housing to remove heat from the x-ray tube, the cooling system including [[:]] a pump[[;]] and a flow sensor system capable of measuring ~~which is responsive to~~ a pressure difference across the pump and determining a coolant flow rate from the measured pressure difference; and

a controller for controlling operation of the x-ray tube in response to the sensed flow rate.

2. (Previously presented) The assembly of claim 1, wherein the flow sensor system includes a differential pressure transducer.

3. (Currently amended) The assembly of claim 1, wherein the cooling system further includes:

a recirculating fluid flow path including a first fluid line which connects the housing with an upstream end of the pump, and a second fluid line which connects a downstream end of the pump with the housing, and wherein the measured pressure difference ~~flow sensor system being responsive to~~ is a pressure difference between the first fluid line and the second fluid line.

4. (Currently amended) The assembly of claim 1, wherein the ~~flow sensor system detects~~ measured pressure difference is a difference between a first pressure upstream of the pump and a second pressure downstream of the pump.

5. (Currently amended) The assembly of claim 1, further including a processor capable of receiving ~~which receives~~ a signal from the flow sensor system that is correlated with the measured pressure difference[[,]] and capable of ~~the processor~~ determining the [[a]] flow rate ~~of cooling fluid~~ from the signal ~~therefrom~~.

6. (Currently amended) The assembly of claim 1, ~~5, further including: a control means,~~ wherein the ~~control means controlling~~ controller controls operation of the x-ray tube in the event that the determined flow rate is below a preselected minimum level.

7. (Currently amended) The assembly of claim 1, ~~5, further including:~~ wherein the controller is capable of ~~a control means responsive to the pressure difference~~ controlling at least one of:

operating power of the x-ray tube;

operating time of the x-ray tube;

~~selectable~~ selection of a scan protocol ~~protocols~~; and

the length of a cooling period ~~prior to subsequent operating~~ of the x-ray tube.

8. (Currently amended) The assembly of claim 1, further including:

a temperature sensor ~~which senses~~ for sensing a temperature of ~~circulating~~ the coolant circulating in at least one of the housing and the cooling system.

9. (Currently amended) The assembly of claim 8, further including:

a processor ~~which receives~~ capable of receiving signals from the temperature sensor and the flow sensor system and ~~determines~~ determining from the received signals an indication of thermal loading or remaining thermal capacity of the cooling system.

10. (Currently amended) The assembly of claim 9, wherein the processor ~~determines a~~ is capable of determining the length of a cooling period[[,]] based on the determined indication, and based on an x-ray tube power, operating time, and duty cycle of a planned scan protocol, so as to ensure that the x-ray tube is capable of performing the planned protocol without overheating.

11. (Currently amended) ~~A CT-scanner including the~~ The assembly of claim 1, wherein the x-ray tube is the x-ray tube of a CT scanner.

12. (Previously presented) A CT-scanner comprising:

the assembly of claim 1;

an x-ray detector;

a scan processor; and

a display.

13. (Currently amended) A method for controlling operation of an x-ray tube, the method comprising:

circulating a ~~cooling fluid~~ coolant through a housing which surrounds at least a portion of ~~and over~~ the x-ray tube ~~with~~ using a pump;

removing heat from the ~~cooling fluid~~ coolant which has circulated through the housing; [[and]]

determining a flow rate of the ~~cooling fluid,~~ coolant ~~including:~~ by ~~determining~~ measuring a pressure difference across the pump or a function which correlates with the pressure difference;[[,]] and

~~determining the flow rate from the pressure difference or function~~

controlling operation of the x-ray tube in response to the determined flow rate.

14. (Currently amended) The method of claim 13, ~~further including:~~ wherein the step of controlling operation of the x-ray tube comprises ~~in the event that the flow rate drops below a predetermined minimum value,~~ reducing power to the x-ray tube when the determined flow rate drops below a predetermined minimum value.

15. (Currently amended) The method of claim 13, further including:

~~Determining a~~ detecting at least one temperature of the ~~cooling fluid~~ coolant.

16. (Currently amended) The method of claim 15, further including:

determining a temperature difference between two temperatures of said at least one temperature.

17. (Currently amended) The method of claim 15, further including:

determining a thermal loading condition of the x-ray tube from the ~~determined~~ detected temperature and the determined flow rate.

18. (Currently amended) The method of claim 17, further including:

in response to the determined thermal loading condition, controlling at least one of:

operating power of the x-ray tube;

operating time of the x-ray tube;

~~selectable~~ selection of a scan protocol ~~protocols~~; and,

the length of a cooling time ~~prior to subsequent operating~~ of the x-ray tube.

19. (Currently amended) A system for removing heat from an associated x-ray tube, the system comprising:

a fluid flow path ~~which carries~~ for carrying a cooling fluid to at least a portion of the associated x-ray tube[[,]] and ~~removes~~ removing heat therefrom;

a pump ~~which circulates~~ for circulating the cooling fluid through the fluid flow path;

~~means~~ a sensor for determining a pressure difference across the pump; and

~~means~~ a controller responsive to the determined pressure difference for controlling operation of the x-ray tube.

20. (Currently amended) The system of claim 19, ~~wherein the determining means includes:~~ further comprising

~~a means for measuring a pressure difference across the pump; and~~

a ~~means~~ processor for determining cooling fluid flow rate from the determined pressure difference.

21. (Currently amended) The system of claim 20, further including:

~~means~~ a sensor for determining a temperature of the cooling fluid,~~; and~~ wherein the controller is ~~the means for controlling also being~~ responsive to the determined temperature.

22. (Currently amended) The system of claim 21, further including:

a means for selecting a scan protocol; and

a means for implementing a scan with the selected scan protocol;

wherein the ~~controlling means~~ ~~in accordance with the determining flow rate and temperature~~ controller controls at least one of:

operating power of the x-ray tube;

operating time of the x-ray tube; [[and]]

~~selectable~~ selection of a scan protocol ~~protocols~~; and

the length of a cooling period of the x-ray tube.